A circuit-breaker, which has at least one arcing chamber which is filled with an isolating gas;
which is filled with an isolating gas; longitualnal axis (1); as area and has at least two power are area and has at least two powers are area and has at least one of the nower contact nieres symmetrical; with at least one of the nower contact nieres. symmetrical, contains an arc area and nas at least two power on the power contact pieces with at least or etationary tubular hollow contact pieces, with at morning or etationary tubular hollow heirs in the form of a morning or etationary tubular hollow. concact pieces, with at least one of the power tubular hollow for diesinating hot gases for diesinating hot gases for being in the form of a moving of diesinating hot gases for diesinating hot gases f peing in the form of a moving of stationary tubular notion dissipating hot gases from having a deficition having a deficition to a moving of stationary tubular notion dissipating hot dissipating hot dissipating having a deficit of the arc area into an exhaust volume into an exhaust volume the arc area into an exhaust the arc area. contact (2), which is provided for dissipating not gases from having a deflection having a having a having a having a hallow the arc area into an exhaust volume eigh of the hallow the arc area into a arranged on the eigh of the hallow the arc area into a arranged on the eigh of the hallow the arc area into a arranged on the eigh of the hallow the arc area into a arranged on the eigh of the hallow the arc area into a arranged on the eigh of the hallow the arc area. the art area which is arranged on the side of the hollow device (4): device (4) which is arranged on the arc area; interacts with at the arc area; interacts with at the arc area; interacts with at avoice (2) facing away (6) in the hollow contact contact area; in the hollow contact area; in the hollow contact area; area; area; and is arranged on the arc area; interacts and is arranged on the side of the hollow contact. contact (2) tacing away from the arc area; interacts with at the hollow contact (2) and is contact (6) in the hollow for the radial least one first opening niece (12) least one first opening (b) in the notion contact (2) for the radial connected to a connecting piece the connected to a connecting piece. Connected to a connecting piece into the exhaust volume of the hot gases into the ora cannot menion deflection of the horacon at least one cannot menion deflection of the horacon at least one cannot menion at least one cannot menion the deflection of the horacon at least one cannot menion the deflection of the horacon at least one cannot menion the deflection of the horacon at least one cannot menion the deflection of the horacon at least one cannot menion the deflection of the horacon at least one cannot menion the deflection of the horacon at least one cannot menion the deflection of the horacon at least one cannot menion the deflection of the horacon at least one cannot menion the deflection of the horacon at least one cannot menion the deflection of the horacon at least one cannot menion the deflection of the horacon at least one cannot menion the deflection of the horacon at least one cannot menion the deflection of the horacon at least one cannot menion the deflection of the horacon at least one cannot menion the deflection of the horacon at least one cannot menion the deflection of the horacon at least one cannot menion the deflection at l derlection of the not gases into the exhaust volume (10);
which is connected through at with at least one second opening (13) which is connected through at arrive chamber which is a remarkant to the exhaust volume (14). which is connected through at reast one second opening with at least one first with at least one the hold an arcing chamber with a hold normal day harmon the hold an arcing chamber with a hold normal day harmon the hold normal day harmon an arcing champer volume (14) being provided between the hollow the intermediate volume (7) being provided between the hollow (7) being provided between the hollow characterized Intermediate volume (1) peing provided perween the north characterized (10); characterized or characterized or contact (2) and the exhaust volume (10); contact in the cont cc (2) and the following ratios are complied with: where: Vi is the gross seartion of the first opening (c) within the hollow contact (2) and within the hollow contact (2) and (2) and (2) and (3) and (4) are the first opening (c) and (2) and (3) and (4) are the hollow contact (2) and (3) and (4) are the hollow contact (2) and (3) are the hollow contact (2) and (3) are the hollow contact (2) and (3) are the hollow contact (3) and (4) are the hollow contact (4) are the hollow contact (2) and (3) are the hollow contact (4) are the hollow contact (4) are the hollow contact (4) are the hollow contact (5) are the hollow contact (6) are the hollow contact (7) are the hollow contact (7) are the hollow contact (7) are the hollow contact (8) are t where: vi is the cross section of the first opening (7) and No.

At is the cross section of the first manager of the first manager opening (7) and No. All by Che cross section of the first intermediate volume the volume of the first intermediate volume the cross section of the intermediate volume to the cross section of the intermediate volume to the volume the cross section of the intermediate volume to the constitution of the intermediate volume to the volume to the constitution of the cross section of the constitution of the constit the cross section of the third opening, the cross section of the third opening the cross section of the cross section the cross section of the third opening (y), v3 is the cross the cross volume (10) and A3 is the cross volume (20). The circuit-breaker as claimed in claim 1, characterized in claim 2, characterized in claim 2, characterized in claim 2, characterized in claim 2, characterized in characterized in claim 2, characterized in ch e circuit - Dreaker as crationary fired manar in the arthur fired manar in the arthur is arranged in a stationary fixed manner in the exhaust LE allanged in a stationary fixed manuer in the exhaust fixed in a stationary fixed yolune (10) and this is arranged in a stationary fixed manner in the interior of an arcing chamber isolator (15) which bounds the arcing chamber volume (14), with the hollow contact (2) being movable together with the connecting piece (12) relatively to them.

- 3. The circuit-breaker as claimed in claim 1, characterized - in that the at least one first intermediate volume (7) is firmly connected to the hollow contact (2) and to the connecting piece (12), and can move together with them through the exhaust volume (10), which is arranged such that it is stationary, relative to the exhaust volume (10).
- 4. The circuit-breaker as claimed in claim 1, characterized
   in that the at least one first intermediate volume (7)
   is firmly connected to the hollow contact (2), to the
   connecting piece (12) and to the exhaust volume (10), and
   can move together with them through the arcing chamber
   volume (14), relative to the arcing chamber volume (14).
- 5. The circuit-breaker as claimed in one of claims 1 to 4, characterized
  - in that the at least one first intermediate volume (7) is arranged concentrically with respect to the deflection device (4),
  - in that the at least one first intermediate volume (7)
     is bounded from the exhaust volume (10) by a first wall
     (8),
  - in that the first wall (8) has at least one third, radially aligned opening (9), which connects the intermediate volume (7) to the exhaust volume (10), and in that the first wall (8) is composed of a highly thermally conductive material, in particular of a metal or of a plastic which can evaporate.

- 6. The circuit-breaker as claimed in one of claims 1 to 5, characterized
  - in that at least one second intermediate volume, which is referred to as an additional volume (16), is provided between the first intermediate volume (7) and the exhaust volume (10), and
  - in that this additional volume (16) is preferably arranged concentrically.
- 7. The circuit-breaker as claimed in claim 6, characterized - in that the at least one additional volume (16) is bounded from the intermediate volume (7) by the first wall (8) and from the exhaust volume (10) by a second wall (17),
  - in that the second wall (17) has at least one fourth, radially aligned opening (18), which connects the additional volume (16) to the exhaust volume (10), and in that the second wall (17) is composed of a highly thermally conductive material, in particular of a metal or of a plastic which can evaporate.
- 8. The circuit-breaker as claimed in claim 7, characterized in that the following ratios are complied with:

$$V_1/A_1 = (0.1 \text{ to } 0.5) \text{ m},$$

$$V_2/A_2 = (0.1 \text{ to } 0.5) \text{ m},$$

$$V_3/A_3 = (1.0 \text{ to } 2.5) \text{ m}, \text{ and}$$

$$V_3/A_3 \ge V_4/A_4 \ge V_2/A_2$$

where:  $V_1$  is the volume within the hollow contact (2) and  $A_1$  is the cross section of the first opening (6),  $V_2$  is the volume of the first intermediate volume (7) and  $A_2$  is the cross section of the third opening (9),  $V_3$  is the volume of the exhaust volume (10) and  $A_3$  is the cross section of the second opening (13),  $V_4$  is the volume of the additional volume (16) and  $A_4$  is the cross section of the fourth opening (18).

- 9. The circuit-breaker as claimed in one of claims 5 to 8, characterized
  - in that the at least one first opening (6) is offset on the circumference with respect to the at least one third opening (9), such that it is not possible for the hot gases to flow in a straight line in the radial direction through the intermediate volume (7).
- 10. The circuit-breaker as claimed in one of claims 5 to 8, characterized
  - in that the at least one first opening (6) is arranged at the circumference with respect to the at least one third opening (9) such that at least some of the hot gases can flow in a straight line in the radial direction through the intermediate volume (7).
- 11. The circuit-breaker as claimed in one of claims 6 to 10, characterized
  - in that the at least one fourth opening (18) is offset at the circumference and/or in the axial direction with respect to the at least one third opening (9) such that it is not possible for the hot gases to flow in a straight line in the radial direction through the additional volume (16).
- 12. The circuit-breaker as claimed in one of claims 6 to 10, characterized
  - in that the at least one fourth opening (18) is arranged with respect to the at least one third opening (9) such that at least some of the hot gases can flow in a straight line in the radial direction through the additional volume (16).

- 13. The circuit-breaker as claimed in claim 1, characterized
  - in that the volume V<sub>1</sub> within the hollow contact (2) is
  - 0.33 liters and the cross section  $A_1$  of the first opening
  - (6) is 1 850 square millimeters,

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- in that the volume  $V_2$  of the intermediate volume (7) is
- 0.7 liters and the cross section  $A_2$  of the third opening
- (9) is 3 800 square millimeters, and
- in that the volume  $V_3$  of the exhaust volume (10) is
- 8 liters and the cross section  $A_3$  of the second opening
- (13) is 4 000 square millimeters.
- 14. The circuit-breaker as claimed in claim 8, characterized
  - in that the opening (9) is closed by a shutter which has a large number of holes (9a, 9b, etc.).
- 15. The circuit-breaker as claimed in claim 14, characterized
  - in that a vertical distance H is provided between the outer face of the wall (8) and the inner face of the wall (11) opposite it,
    - in that the holes (9a, 9b, etc.) each have a diameter D, and
    - in that the ratio H/D is intended to be in the range from 5 to 1.5.
- 16. The circuit-breaker as claimed in claim 15, characterizedin that an axial distance S is provided between thecenters of the holes (9a, 9b, etc.) and is defined by the

 $S = 1.4 \times H$ .

following relationship:

- 17. The circuit-breaker as claimed in one of claims 14 to 16, characterized
  - in that the holes(9a, 9b, etc.) have inclined side walls (27), such that the holes (9a, 9b, etc.) widen in the flow direction of the hot gas.

(e) b = 0

- 18. The circuit-breaker as claimed in claim 17, characterized
   in that the side walls (27) of the widening holes (9a,
  9b, etc.) are at an angle in the range from 35° to 50°,
  but are preferably at an angle of 45°, with respect to
  the longitudinal axis of the holes (9a, 9b, etc.).
- 19. The circuit-breaker as claimed in one of claims 16 to 18, characterized
  - in that further holes, which are shifted at the circumference with respect to the holes (9a, 9b, etc.), are arranged such that the impact points of the gas jets flowing through the holes on the opposite wall are separated by the distance S all round.
- The circuit-breaker as claimed in claim 1, characterized

   in that the at least one intermediate volume (7) is
   designed such that it can be installed retrospectively in circuit-breakers which are already in operation.

(Figure 1)